Case Report Rapport de cas

Bilateral sinus cysts in a filly treated by endoscopic sinus surgery

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Abstract — Bilateral cysts in the frontal and caudal maxillary sinuses in a filly treated by endoscopic sinus surgery (sinoscopy) and triangulation technique are described. Sinoscopy has the advantage of being a minimally invasive technique and permits a complete inspection of the frontal and maxillary sinuses, which is not possible through flap sinusotomy.

Résumé — Kystes bilatéraux des sinus chez une pouliche traitée par une chirurgie endoscopique des sinus. Des kystes bilatéraux dans les sinus maxillaires frontal et caudal chez une pouliche traitée par une chirurgie endoscopique des sinus (sinoscopie) et une technique de triangulation sont décrits. La sinoscopie possède l'avantage d'être une technique minimalement invasive et permet une inspection complète des sinus frontal et maxillaire, ce qui n'est pas possible par une sinusotomie avec lambeau.

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A 2-year-old, mixed breed filly was referred to the veterinary hospital of the University of São Paulo for evaluation of a purulent nasal discharge that had started 60 d earlier.

Case description

On physical examination, the animal had a bilateral mucopurulent nasal discharge, loud inspiratory and expiratory noise, and dyspnea; percussion of the paranasal sinuses resulted in a dull sound.

Endoscopic examination of the upper airway was inconclusive, showing the presence of purulent exudate in the caudal nasal cavity and larynx, more evident in the left side. Radiographic examination showed a bilaterally increased radiopacity in the region of the ethmoidal and maxillary sinuses.

Since the endoscopic and radiographic examinations were inconclusive and there was profuse mucopurulent discharge, conservative treatment for sinusitis was instituted with the administration of procaine penicillin (Pentabiótico Veterinário Reforçado; Fort Dogde — Campinas/SP, Brazil), 20 000 IU/kg body weight (BW), IM, q12h, phenylbutazone (Equipalazone; Marcolab — Duque de Caxias/RJ, Brazil), 2.2 mg/kg BW, IV, q12h and inhalation with dexamethasone (Azium; Shering-Plough — Cotia/SP, Brazil) associated with a mucolytic (Tergenvet; Univet — São Paulo/SP, Brazil). After 10 d of treatment, the nasal discharge and respiratory noise decreased. Radiographs revealed opacity, which was more evident on the right side. A 2nd endoscopic evaluation revealed the presence of a smooth yellowish-green mass, suggestive of a sinus cyst, protruding through the nasomaxillary opening into the right middle meatus. No abnormalities were observed on the left side. The cyst and resulting distortion of dorsal and ventral conchae completely obstructed the passage of the endoscope (Figure 1).

The animal underwent endoscopic sinus surgery (sinoscopy) on the right side under general anesthesia. The skin was incised 0.5 cm caudal to an imaginary line joining the medial canthi of the eyes and 5 cm lateral from the midline on the right side; a portal for a 4-mm/30° endoscope was then created in the frontal sinus with a 6-mm diameter drill.

The cyst occupied most of the frontal and caudal maxillary sinuses. After puncture, a yellow fluid drained from the cyst. An additional portal, 3 cm rostral to the original, was made for instruments, completing the triangulation technique. Resection of the cyst wall was performed by first introducing a 5-mm laparoscopic scissor. The dorsal wall of the cyst was then resected and removed by using a 5-mm grasping forceps (Figure 2), thus establishing drainage. The mucosal surface in contact with and firmly attached in the adjacent osseous surface appeared normal and was left intact. The skin was closed by using a simple interrupted suture pattern with nylon 2-0 thread. A Pezzer´s catheter was inserted through the frontal portal for lavage during the postoperative period.

During the postoperative period, the animal was medicated with trimethoprin-sulfadiazine (Saneprim; Formil Vet — Jandira/SP, Brazil), 30 mg/kg BW, PO, q12h for 34 d, and phenylbutazone (Equipalazone; Marcolab), 4.4 mg/kg BW, IV, q24h for 6 d. Sinus lavage with 2 L of NaCl 0.9% solution was performed q12h for 7 d.

Twenty days after surgery, a control nasal endoscopy was performed and revealed the presence of a mass with the same characteristics of the cyst on the right side protruding through the nasomaxillary opening into the left middle meatus. The animal underwent a 2nd sinoscopy 1 wk later when the cyst was

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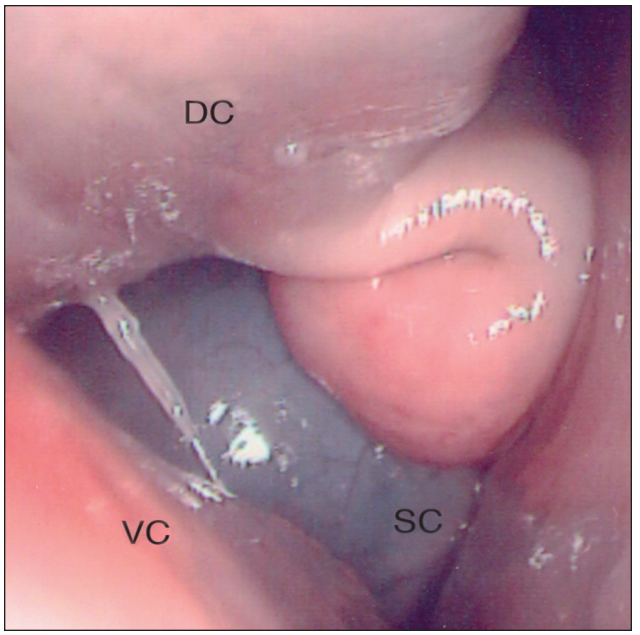

Figure 1. Endoscopic view of nasal obstruction by a sinus cyst (SC) presenting conchae distortion. Dorsal conchae (DC); ventral conchae (VC).

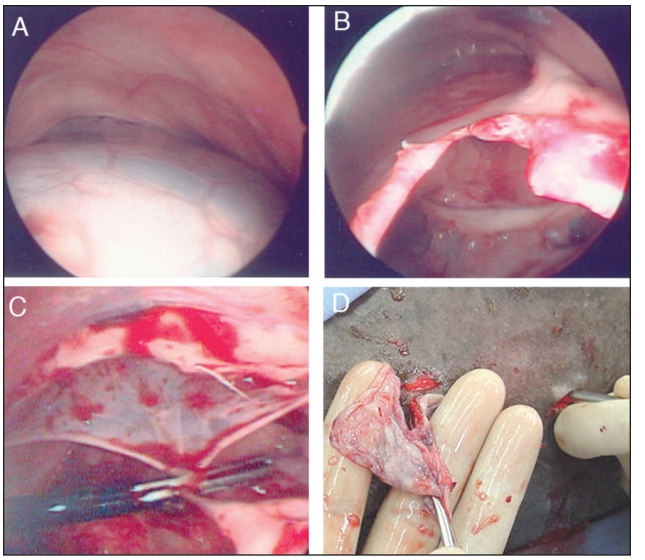

Figure 2. Surgical sinoscopic procedure. Cystic wall before (A) and after (B) sinus cyst opening and drainage; cystic wall resection using grasping forceps (C) and removal (D).

removed, using the same surgical technique as for the 1st sinoscopy. The only difference was that the instrument portal was made 2 cm rostral to the endoscope portal.

The sinus lavage in this sinus was performed q12h for 10 d. Trimethoprin-sulfadiazine, 30 mg/kg BW, PO, q12h, was administered for another 7 d, and phenylbutazone, 4.4 mg/kg BW, IV, q24h, for 4 d, after which there was no nasal discharge.

Postoperative recovery was satisfactory, leading to complete remission of the clinical signs, and the animal was discharged 15 d after the 2nd surgery. A control nasal radiograph and an endoscopic examination were performed 17 mo later, when there was no sign of sinus disease. The distortion of the nasal conchae and nasomaxillary opening permitted endoscopic entrance to the caudal maxillary sinus.

Discussion

Sinus cysts are expansive lesions, of unknown etiology, with a distinct wall containing yellow fluid that usually develop in the frontal and caudal maxillary sinuses (1,2). The presence of a sinus cyst is suspected whenever a horse, regardless of age, is presented with obstructive dyspnea, respiratory noise, facial swelling, and an unexplained nasal discharge that begins as a clear fluid and later becomes infected, resulting in a more purulent discharge, and when radiographs of sinusal cavities show an increase in soft tissue density with an oval or round smooth contour (3,4). This finding must be distinguished from that for inflammatory sinusitis or sinonasal masses (4). In the present case, the radiographs of the skull revealed opacification of the sinusal region that was characteristic of sinus disease.

The identification of an exudate originating from the nasomaxillary opening on nasal endoscopy is sufficient to establish a diagnosis of sinus disease, but the associated chronic infection can make a precise diagnosis difficult (3). Distortion of the nasal passages or nasomaxillary opening associated with sinus disease is evidence of an expansive mass, such as an ethmoid hematoma, a sinus cyst, or neoplasia (3). During the 2nd nasal endoscopic examination in this case, the cyst was seen protruding through the nasomaxillary opening, as has been reported by Woodford and Lane (2) in 25% of the cases.

Sinus cysts can be treated successfully by subtotal excision through a bone flap (1,4–7). The treatment in 2 horses of smaller sinus cysts through sinus endoscopy, using a combination of debridement, lavage, and suction has already been described (8). These authors suggested that flap sinusotomy might be necessary when large cysts are found. This is the 1st report of using sinoscopy in a horse for treatment of bilateral cysts occupying most of the maxillary and frontal sinuses.

By using the triangulation technique, accurate sinocentesis, biopsy sampling, and even simple surgical procedures, such as that described in this report, can be carried out (9). The instrument portal used for the triangulation technique on the left side, 2 cm rostral to the initial portal, permitted better resection of the cyst wall than the portal 3 cm rostral to the initial portal that was used in the sinoscopy on the right side. The exact sites of the portals for the triangulation technique in the frontal sinus in horses have not been described yet. Access to the cyst wall permits a blunt dissection, with little bleeding, and treatment through sinoscopy instead of creating a frontal sinus bone flap.

It is important to consider using a catheter fixed to one of the portals for lavage, thus reducing the risk of persisting infection and providing better recovery. We recommend the use of large amounts of fluid with a good flow to establish drainage of sinus contents.

There was complete resolution of clinical signs without recurrence 17 mo after 2nd sinoscopy. Woodford and Lane (2)

believed that total extirpation of the cyst lining is rarely possible, but that partial extirpation seems to be very effective, as, in their studies, there was no instance of recurrence of a cyst in 45 of 48 cases.

Sinoscopy provides a useful and relatively noninvasive diagnostic technique when radiography or nasal endoscopy are inconclusive (9); it is well tolerated in conscious, standing horses, without the need of general anesthesia and flap sinusotomy (8). The advantage of the sinoscopy, as opposed to flap sinusotomy, is that sinoscopy is a minimally invasive technique performed using small incisions leading to less bleeding and fewer complications in the postoperative period; it also provides complete inspection of the frontal and maxillary sinuses, which is not possible through flap sinusotomy.

Authors' contributions

Dr. Fernandes performed the clinical examination and surgical indication. Dr. Baccarin provided hospital assistance for the preoperative period and performed the radiographic and endoscopic examinations. Drs. Silva and Zoppa were the surgeons for each procedure and were responsible for the postoperative period. Dr. Machado was responsible for the postoperative procedures as a resident. Drs. Machado and Silva were responsible for data acquisition, analysis and interpretation, and wrote the final manuscript. Drs. Zoopa, Fernandes, and Baccarin were responsible for the revision of the final manuscript. CVJ

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